UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/050,808	03/30/1998	YUTAKA MACHIDA	MAT-5860	7277

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EXAMINER
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ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 April 2003</u> .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>2,7 and 12-20</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>2,7 and 12-20</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/22/03

has been entered.

Response to Arguments

2.   Applicant's arguments filed 4/22/03 have been fully read and considered but they

are not persuasive.

Regarding lines 7-9 on page 6 of applicant's remarks about independent claims

12, 16, 17 and 20, applicant argues that Sun does not disclose the "at least two frames

which are prior to a present frame". The examiner respectfully disagrees. It is the

examiner's contention that Tahara et al. (5,633,682) teaches the "at least two frames

which are prior to a present frame" limitation. Tahara discloses a situation where frame

F3 is the present video frame, frame F2 is the video frame prior to the present video

frame, frame F1 is the further video frame two frames prior to the present video frame

(see figure 4). Further, Tahara's figure illustrates the motion vector x2 is constructed

from the present video frame F3 and a video frame prior to the present video frame F2

(a predicted pixel block based on frame N and frame N-1 is generated). Then, the

motion vector x3 is constructed from the present video frame F3 and the further video

frame two frames prior to the present video frame F1 (another predicted pixel block based on frame N and frame N-2 is generated). Evidently, one of ordinary skilled in the art can clearly see that Tahara's motion vector x2 can be the first motion vector and Tahara's motion vector x3 can be the second motion vector as disclosed by the applicant. In other words, Tahara discloses the generation of another predicted pixel block based on a reconstructed video frame that is two frames before the present frame or "in each of at least two frames which are prior to the present frame". Thus, the detecting and storage of error in the information of one of the pixel blocks "in each of at least two frames which are prior to the present frame" can be achieved by combining Sun and Tahara. Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Sun and Tahara, as a whole, for permitting the high quality display of sequential video information so as to meet with today's modern video encoding standards. Because Tahara teaches the use of motion vectors x2 and x3 in a similar fashion as compared to the applicant's invention, one of ordinary skill in the art would consider combining Tahara with Sun so as to teach applicant's claim 12 step of "generating from the decoded motion vectors at least two predicted pixel blocks corresponding to a present pixel block; judging if one of the at least two predicted pixel blocks corresponds to error information of the at least two frames stored in the error memory; and based on the judging, determining if the one of the at least two predicted pixel blocks is used in reconstructing the present pixel blocks."

Regarding lines 32-33 on page 6 of applicant's remarks, applicant asserts that claim 12 relates to a method of decoding whereas Figure 4 of the Tahara patent relates

to a method of encoding. The examiner respectfully disagrees. To any one of ordinary skilled in the art, it would have been obvious to teach an encoding method with a decoding method. Does the applicant truly believe that Tahara does not have a decoding method to perform the opposite of the encoding method as shown in Figure 4? If there is no decoding method to decode the image data, then there is no point in invention a coding method as shown in Tahara's Figure 4 because the encoded video data would not be displayable. Of course, Tahara has a decoder in Figure 13 that is similar to the applicant's figures 1 and 6. Also, the applicant discloses coding apparatuses in Figures 3 and 4. So, clearly one of ordinary skill in the art would obviously recognize that a decoder requires an encoder just as an encoder requires a decoder to function properly for efficient coding and smooth display of images. Therefore, one of ordinary skill in the art would obviously include a decoding method or apparatus, in Tahara, to perform the opposite operation of Tahara's Figure 4 to ensure proper, efficient coding and smooth display of images.

Regarding lines 17-18 on page 7 of applicant's remarks, applicant contends that Tahara's invention contrasts with the applicant's invention of decoding process. The examiner respectfully disagrees. As stated in the above paragraph, Tahara has a decoder in figure 13 that is similar to the applicant's figures 1 and 6. Clearly, Tahara discloses a decoding process that is similar to the applicant's invention. Also, it is evident that Tahara's figure 8, an encoding apparatus, is similar to applicant's encoding apparatus in applicant's figure 3. Clearly, it is elucidated that both Tahara and the applicant's invention pertains to the same MPEG video encoding/decoding environment.

Also, Sun discloses the use of MPEG video encoding/decoding environment (col.1,

ln.23-35).

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 2, 7 and 12-20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Sun (5,247,363) in view of Tahara (5,633,682).

Regarding claim 20, Sun discloses a decoding apparatus for decoding an image

signal representing motion, the image signal being a bit stream of a coded compressed

video signal, the decoding apparatus comprising:

means for decoding the bit stream for information defining pixel blocks, the

motion information including motion vectors (figure 5, note elements 302 and 303 are

used to decode the video data bit stream);

means for detecting an error in the information of one of the pixel blocks (figure

5, note the error is sent from element 302 to element 348, thus error is detected);

means for storing error information of the one of the pixel blocks in an error

memory (figure 5, element 348);

means for storing video information of at least two frames which are prior to a

present frame (figure 5, element 316);

means for generating, from the at least two frames, at least two predicted pixel blocks corresponding to a present pixel block in the present frame (figure 5, element 304 is a motion compensation means);

means for judging if one of the at least two predicted pixel blocks corresponds to error information stored in the means for storing (figure 5, element 344; note element 304 generates the at least two predicted pixel blocks and then the information is sent back to element 316, then the information is sent to element 344, the means for judging); and

means for determining if the one of the at least two predicted pixel blocks is used in reconstructing the present block, based on judging of the means for judging (figure 5, element 344; note element 348 sends the motion vector data and error information to element 344 for determining if the at least two predicted pixel blocks is used in reconstructing the present block).

Sun does not disclose the limitation "in each of at least two frames which are prior to the present frame." However, Tahara teaches a scenario with frame F3 as the present video frame, frame F2 as the video frame prior to the present video frame, frame F1 as the further video frame two frames prior to the present video frame (see figure 4). Further, Tahara's figure shows the motion vector x2 is constructed from the present video frame F3 and a video frame prior to the present video frame F2 (a predicted pixel block based on frame N and frame N-1 is generated). Then the motion vector x3 is constructed from the present video frame F3 and the further video frame two frames prior to the present video frame F1 (another predicted pixel block based on

frame N and frame N-2 is generated). Clearly, one of ordinary skilled in the art can see

that Tahara's motion vector x2 can be the first motion vector and Tahara's motion vector

x3 can be the second motion vector as disclosed by the applicant. In other words,

Tahara discloses Tahara discloses the generation of another predicted pixel block

based on a reconstructed video frame that is two frames before the present frame or "in

each of at least two frames which are prior to the present frame". Thus, the detecting

and storage of error in the information of one of the pixel blocks "in each of at least two

frames which are prior to the present frame" can be achieved by combining Sun and

Tahara. Therefore, it would have been obvious to one of ordinary skill in the art to take

the teachings of Sun and Tahara, as a whole, for permitting the high quality display of

sequential video information so as to meet with today's modern video encoding

standards.

Note claims 12-14, 16 and 17 have similar corresponding elements.

Regarding claim 2, Sun discloses the predicted pixel blocks are free from

decoding error and are used in the reconstruction of the present pixel block (figure 5,

element 344 the predicted pixel blocks are free from decoding error and that these pixel

blocks are used for reconstruction).

Regarding claim 7, Sun discloses the storing of bit errors in decoding error maps

(figure 5, element 348).

Regarding claim 15, Sun discloses that if the at least two pixel blocks are judged

not to correspond to error information, an average of the at least two predicted pixel

blocks is used for reconstruction (figure 5, element 340; note an average value of the

predicted pixel blocks is calculated at 340, then the average value is stored at element

342, next the average value is used for reconstruction).

Regarding 18, Sun discloses a variable length decoder (figure 5, element 303;

note element 302 is a decompression controller that controls the VLD 303) and the error

information is stored into the decoding error maps (figure 5, element 348).

Regarding claim 19, Sun discloses the motion compensation means for

generating one predicted pixel block based on a reconstructed video frame that is one

frame before the present frame (figure 5, element 304 is a motion compensation

means). Sun does not disclose the generation of another predicted pixel block based

on a reconstructed video frame that is two frames before the present frame. However,

Tahara teaches a scenario with frame F3 as the present video frame, frame F2 as the

video frame prior to the present video frame, frame F1 as the further video frame two

frames prior to the present video frame (see figure 4). Further, Tahara's figure shows

the motion vector x2 is constructed from the present video frame F3 and a video frame

prior to the present video frame F2 (a predicted pixel block based on frame N and frame

N-1 is generated). Then the motion vector x3 is constructed from the present video

frame F3 and the further video frame two frames prior to the present video frame F1

(another predicted pixel block based on frame N and frame N-2 is generated). Clearly,

one of ordinary skilled in the art can see that Tahara's motion vector x2 can be the first

motion vector and Tahara's motion vector x3 can be the second motion vector as

disclosed by the applicant. In other words, Tahara discloses the generation of another

predicted pixel block based on a reconstructed video frame that is two frames before

the present frame. Therefore, it would have been obvious to one of ordinary skill in the

art to take the teachings of Sun and Tahara, as a whole, for permitting the high quality

display of sequential video information so as to meet with today's modern video

encoding standards.

Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Allen Wong whose telephone number is (703) 306-

5978. The examiner can normally be reached on Mondays to Thursdays from 8am-

6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone

numbers for the organization where this application or proceeding is assigned are (703)

872-9314 for regular communications and (703) 872-9314 for After Final

communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

4700.

Allen Wong
Examiner
Art Unit 2613

AW
May 22, 2003

CHRIS KELLEY
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